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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,667	12/03/2001	Esteban Masuda	021044-000600US	7585

20350 7590 06/23/2006

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EXAMINER	
HUTSON, RICHARD G	

ART UNIT	PAPER NUMBER
1652	

DATE MAILED: 06/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/998,667	MASUDA ET AL.	
	Examiner	Art Unit	
	Richard G. Hutson	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 April 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-47* is/are pending in the application.

4a) Of the above claim(s) *17,18 and 20-46* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16,19 and 47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *6/02,1/03,4/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Applicants amendment of claims 1, 4, 5, 7, 8 and 12, and the addition of new claim 47, in the paper of 4/17/2006, are acknowledged. Claims 1-47 are still at issue and are present for examination.

Applicants' arguments filed on 4/17/2006, have been fully considered and are deemed to be persuasive to overcome some of the rejections previously applied. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn.

Claims 17, 18, 20-46 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention, the requirement having been traversed in the paper of 9/28/2004.

Information Disclosure Statement

Applicants filing of the information disclosure statement filed on 6/6/2002, 1/13/2003 and 4/17/2006, are acknowledged. Those references considered have been initialed.

Claim Rejections - 35 USC § 112

The rejection of claims 1, 3, 4, 7, 8 and 12, as being indefinite with respect to the recited "functional effect"; "chemical effect" and "physical effect" are withdrawn, in light of applicants arguments presented in the paper of 4/17/2006 and applicants referred to specification.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-16, 19 and 47 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The rejection is stated in the previous office action as it applies to previous claims 1-16 and 19. In response to this rejection, applicants have amended claims 1, 4, 5, 7, 8 and 12 and added new claim 47 and traverse the rejection as it applies to the newly amended claims. Claim 47 is included in the rejection for the reasons previously stated for claim 1.

Applicants submit that they have amended the claims to recite a method for identifying a compound that modulates T lymphocyte activation by contacting the compound with a TRAC1 polypeptide comprising an amino acid sequence having at least about 90% identity to SEQ ID NO: 1. More accurately, the claims have been recited to recite "...TRAC1 polypeptide comprising **an** amino acid sequence having at least 90% identity to **an** amino acid sequence of SEQ ID NO: 1". Thus recited claims are considerably broader than that asserted by applicants in their traversal.

Applicants further submit that the amended claims fully comply with the requirements for written description of a chemical genus as set forth in *Lilly*. Applicants

submit that the amended claims set forth both functional elements as well as structural elements. Such is not apparent to the examiner, and applicants are encouraged to specify what functional and structural elements applicants are referring to and applicant's claims have set forth.

The amended claims 1-16 and 19 are directed to all possible methods comprising contacting a compound (any small organic) with any "TRAC1 polypeptide comprising **an** amino acid sequence having at least 90% identity to **an** amino acid sequence of SEQ ID NO: 1" and determining the functional effect of the compound upon the TRAC1 polypeptide. The recitation "TRAC1 polypeptide comprising **an** amino acid sequence having at least 90% identity to **an** amino acid sequence of SEQ ID NO: 1" encompasses virtually any protein. This recitation is interpreted as broadly as is reasonable and as such reads on an extremely large genus of polypeptides and fragments of polypeptides with broad functional limitations and virtually no structural limitations.

Applicants complete argument is acknowledged, however, is found nonpersuasive on the basis that applicants claimed structural limitations continue to be extremely broad as discussed previously and above and applicants functional limitations as discussed previously are extremely broad and applicants claims have virtually no structure/function activity basis.

As stated previously, the specification, only provides the representative species of claimed methods comprising the use of an isolated TRAC1 polypeptide, wherein said TRAC1 polypeptide comprises the amino acid sequence of SEQ ID NO: 1,

encompassed by these claims. There is no disclosure of any particular structure to function/activity relationship in the single disclosed species. The specification also fails to describe additional representative species of the necessary TRAC 1 polypeptide by any identifying structural characteristics or properties. Given this lack of additional representative species as encompassed by the claims, Applicants have failed to sufficiently describe the claimed invention, in such full, clear, concise, and exact terms that a skilled artisan would recognize Applicants were in possession of the claimed invention.

Applicant is referred to the revised guidelines concerning compliance with the written description requirement of U.S.C. 112, first paragraph, published in the Official Gazette and also available at www.uspto.gov.

Claims 1-16, 19 and 47 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method comprising contacting a compound (any small organic) with a TRAC1 polypeptide, wherein said TRAC1 polypeptide comprises the amino acid sequence of SEQ ID NO: 1 and determining the functional effect of the compound upon the TRAC1 polypeptide, does not reasonably provide enablement for any method comprising contacting a compound (any small organic) with any TRAC1 polypeptide comprising **an** amino acid sequence having at least 90% identity to **an** amino acid sequence of SEQ ID NO: 1 and determining the functional effect of the compound upon the TRAC1 polypeptide. The specification does not enable any person skilled in the art to which it pertains, or with which it is most

nearly connected, to make and use the invention commensurate in scope with these claims.

The rejection is stated in the previous office action as it applies to previous claims 1-16 and 19. In response to this rejection, applicants have amended claims 1, 4, 5, 7, 8 and 12 and added new claim 47 and traverse the rejection as it applies to the newly amended claims. Claim 47 is included in the rejection for the reasons previously stated for claim 1.

Applicants submit that they have amended the claims to recite a method for identifying a compound that modulates T lymphocyte activation by contacting the compound with a TRAC1 polypeptide comprising an amino acid sequence having at least about 90% identity to SEQ ID NO: 1. More accurately, the claims have been recited to recite "...TRAC1 polypeptide comprising **an** amino acid sequence having at least 90% identity to **an** amino acid sequence of SEQ ID NO: 1". Thus recited claims are considerably broader than that asserted by applicants in their traversal.

Applicants submit that the level of identity required by the claims is intended to encompass other naturally-occurring variants and alleles of TRAC1 that have the same activity as a polypeptide having an amino acid sequence of SEQ ID NO: 1 as well as orthologs that can be used in the assays of the invention. Applicants submit that methods for determining percent identity are disclosed and well known in the art and that these elements provide guidance.

Applicants argument is not persuasive because while methods to produce variants of a known sequence such as site-specific mutagenesis, random mutagenesis,

etc. are well known to the skilled artisan producing variants as claimed by applicants (i.e., encoding a ligase) requires that one of ordinary skill in the art know or be provided with guidance for the selection of which of the infinite number of variants have the claimed property. Without such guidance one of ordinary skill would be reduced to the necessity of producing and testing all of the virtually infinite possibilities. This would clearly constitute undue experimentation. While enablement is not precluded by the necessity for routine screening, if a large amount of screening is required, the specification must provide a reasonable amount of guidance with respect to the direction in which the experimentation should proceed. Such guidance has not been provided in the instant specification. As previously stated the specification does not establish: (A) regions of the protein structure which may be modified without effecting the desired activity; (B) the general tolerance of TRAC1 polypeptide to modification and extent of such tolerance; (C) a rational and predictable scheme for modifying any amino acid residue of a TRAC1 polypeptide with an expectation of obtaining the desired biological function; and (D) the specification provides insufficient guidance as to which of the essentially infinite possible choices is likely to be successful. Applicants are reminded that applicants have not specifically defined the functional effect or activity to which applicants refer.

Because of this lack of guidance, the extended experimentation that would be required to determine which substitutions would be acceptable to retain the desired activity of the TRAC1 polypeptide and the fact that the relationship between the sequence of a peptide and its tertiary structure (i.e. its activity) are not well understood

and are not predictable (e.g., see Ngo et al. in The Protein Folding Problem and Tertiary Structure Prediction, 1994, Merz et al. (ed.), Birkhauser, Boston, MA, pp. 433 and 492-495, Ref: U, Form-892), it would require undue experimentation for one skilled in the art to arrive at the majority of those methods of the claimed genus.

Thus, applicants have not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claims broadly including any method comprising contacting a compound with any "any TRAC1 polypeptide comprising **an** amino acid sequence having at least 90% identity to **an** amino acid sequence of SEQ ID NO: 1" and determining the functional effect of the compound upon the TRAC1 polypeptide. The scope of the claims must bear a reasonable correlation with the scope of enablement (In re Fisher, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determination of those methods of use of those TRAC1 polypeptides, having the desired biological characteristics, is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See In re Wands 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-10, 13-16, 19 and 47 are rejected under 35 U.S.C. 102(a) as being anticipated by Sitkovsky (U.S. Patent No. 5,180,662).

The rejection is stated in the previous office action as it applies to previous claims 1-4, 6-10, 13-16 and 19. In response to this rejection, applicants have amended claims 1, 4, 7, 8 added new claim 47 and traverse the rejection as it applies to the newly amended claims. Claim 47 is included in the rejection for the reasons previously stated for claim 1.

For applicant's convenience, the previous rejection is repeated herein.

Sitkovsky teach methods for the quantitative study of cytotoxic T-lymphocyte activation by measuring secreted granule-associated BLT esterase activity after incubating the cytotoxic T- lymphocytes with activating stimuli. Sitkovsky specifically teach a method comprising contacting a compound with a "TRAC1 polypeptide or a fragment thereof", as defined by the limitations of the claim, and determining the "functional effect" of the compound upon the "TRAC1 polypeptide".

It is acknowledged that the methods taught and claimed by Sitkovsky are not necessarily limited to their use in identifying a compound that modulates T lymphocyte activation or are they limited to the use of the specific embodiments taught by the instant application, however, the methods taught by Sitkovsky anticipate the claimed methods by virtue of the extreme breadth of the claims. For example, applicants claim 1 recites "a TRAC1 polypeptide or a **fragment thereof**, the polypeptide or fragment thereof encoded by **a nucleic acid** that hybridizes under stringent conditions to **an**

antisense nucleic acid **corresponding** to a nucleic acid encoding **a polypeptide** having **an amino acid sequence** of SEQ ID NO: 1". This recitation is interpreted as broadly as is reasonable and as such reads on an extremely large genus of polypeptides and fragments of polypeptides with no functional limitations and virtually no structural limitations. Thus the "measuring of secreted granule-associated BLT esterase activity" is considered to be encompassed by "determining the functional effect of the compound upon the TRAC1 polypeptide" (See also above 112 1st and 2nd paragraph rejections).

Claims 15 and 16 are included in this rejection on the basis that, using claim 15 as an example, claim 15 recites "**an** amino acid sequence of SEQ ID NO: 1" and this is interpreted as encompassing **any** amino acid sequence found in SEQ ID NO: 1, for instance, even a di or tri-peptide sequence found within SEQ ID NO: 1.

In response to this rejection, applicants have amended claims 1, 4, 7, 8 added new claim 47 and traverse the rejection as it applies to the newly amended claims.

Applicants first submit standards for anticipation and for inherency, followed by applicant's traversal. Applicants submit that "Sitkovsky fails to explicitly or inherently teach that TRAC1 is involved in T-cell activation" and that Sitkovsky only discloses a method for assaying cytotoxic T lymphocyte activation by measuring secreted granule-associated BLT esterase activity after incubating the cytotoxic lymphocytes with activating stimuli. Applicants submit that this contrasts the claims as amended because they are directed to a method for identifying a compound that modulates T lymphocyte

activation by contacting the compound with a TRAC1 polypeptide comprising an amino acid sequence having at least about 90% identity to SEQ ID NO: 1.

Applicants further traverse the rejection on the basis that to the extent that the rejection is based on Sitkovsky inherently teaching that T cell activation is modulated by TRAC1, it is mistaken , because the only reasoning to support such is found in the instant specification. Applicants submit that such an assertion is improper, as the instant specification provides the first demonstration that TRAC1 is involved in T cell activation and T cell receptor signaling.

Applicants complete argument is acknowledged, however, found nonpersuasive on the following basis. First applicant's statement of the standards for anticipation and inherency are appreciated. Applicants statement that Sitkovsky fails to explicitly or inherently teach that TRAC1 is involved in T-cell activation is also acknowledged, however, such is not found relevant to what Sitkovsky does teach. As previously stated, Sitkovsky specifically teach a method comprising contacting a compound with a "TRAC1 polypeptide or a fragment thereof", as defined by the limitations of the claim, and determining the "functional effect" of the compound upon the "TRAC1 polypeptide". The methods taught by Sitkovsky comprise contacting a compound (i.e. an activating stimuli such as ionophore A23187) with cytotoxic T-lymphocytes (which comprise a "TRAC1 polypeptide" as defined). A specific or general teaching of the TRAC1 polypeptide is unnecessary to anticipate the methods claimed. The cells of the methods taught by Sitkovsky inherently comprise the defined "TRAC1 polypeptides" . Thus the

methods taught by Sitkovsky anticipate the claimed methods drawn to contacting a compound with a TRAC1 polypeptide.

It continues to be acknowledged that the methods taught and claimed by Sitkovsky are not necessarily limited to their use in identifying a compound that modulates T lymphocyte activation or are they limited to the use of the specific embodiments taught by the instant application, however, the methods taught by Sitkovsky anticipate the claimed methods by virtue of the extreme breadth of the claims. For example, applicants amended claims recite "a TRAC1 polypeptide", the polypeptide "comprising **an amino acid sequence** having at least 90% identity to an amino acid sequence of SEQ ID NO: 1". This recitation continues to be interpreted as broadly as is reasonable and as such reads on an extremely large genus of polypeptides and fragments of polypeptides with no functional limitations and virtually no structural limitations. Thus the "measuring of secreted granule-associated BLT esterase activity" is considered to be encompassed by "determining the functional effect of the compound upon the TRAC1 polypeptide".

Thus claims 1-4, 6-10, 13-16, 19 and 47 remain anticipate by Sitkovsky for the reasons previously stated and repeated herein.

Remarks

No claim is allowed.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard G. Hutson whose telephone number is 571-272-0930. The examiner can normally be reached on M-F, 7:00-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ponnathapu Achutamurthy can be reached on 571-272-0928. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Richard G Hutson, Ph.D.
Primary Examiner
Art Unit 1652

rgh
6/19/2006